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Feb. 27, 1964

Linear Phasolver Measuring Engine, Contract

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STATINTL seem to have the program pretty well under control. They have started the electronicwork again and with continued progress, it will not be a pacing item. The digital circuits are almost all built and tested and the rack wired for them. The analogue circuits are being worked on. The drive amplifier and preamp which was used in phase 1 at 6½ KC is being tested at 10 Kc for use in this phase. They are making open loop gain and phase plots and will check it for stable operatione over a temperature range of 50° F to 100° F.

They have alloted 4 weeks in April to check out the electronics. They expect to use the old plates from ph.1 for the checkout so that the electronics phase will be in good order when they go into system test the end of April.

STATINTL STATINTL is working on the master and it is due March 19. The master will then go to STATINTL for making the final plates., which will take about 4 weeks. The glass plates have been completed by STATINTL and are now over STATINTL at STATINTL for measurement.

STATINTL If STATINTL meet their dates, TC expects to be able to demonstrate 1 micron measuring capability before the end of June. This is a little later than their contract date, but they have not formally requested a contract extension. They are currently on the schedule that was reported in the 5th progress report, 12 Dec. 63

We discussed some of the approaches to the design of a prototype measuring machine using the linear phasolver as the measuring engine. It is important of course to retain the unique advantages of the linear phasolver:

a. No ambiguity in the reading
b. No long train of pulses to count
c. No limitation on traverse rate imposed by a lead screw rate or by a counting rate.

STATINTL They will put some of their ideas on paper for STATINTL to consider. They will also send STATINTL a copy of their proposal for a White Sands reader. They are in negotiation on that contract now.

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FEB. 27, 1964

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ABD-4 Roll Film Dryer

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I arranged with [ ] to see the ABD-4 work. [ ] had assigned their number one field service man to check out the machine. This is [ ] He was stationed in Washington D. C. for several years. STATINTL

Charley went over the whole machine and realigned the rollers. After the careful realignment, he got good tracking over the output vacuum roller. When he ran the machine for me, the tracking over the input roller was giving trouble.

We ran it dry with thin base film on a roller mounted about waist high on the forward wall of the machine. There was a roll already on the machine with about 300 or 400 feet left on it. We ran that off with no troubles and it looked as though the tracking problem had been cured.

Then we took the full roll of about 900 feet and ran it through the machine again. Mistracking over the input vacuum roller occured 3 or 4 times during the 900 foot run. It appeared to me that the tension on that input spool that fed film to the input vacuum roller need adjustment, but we were unable to resolve the problem at that time. It was unfortunate that

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[ ] was not available to comment on that performance of the machine on that run compared to the previous performance when he was running tests. We ran the machine at all speeds from slowest of about 5 fpm I estimate to the highest of 18½ fpm which I measured. I had thought that the top speed would be up around 25 or 30 fpm. Caution had to be exercised when varying the speed that the input and output vacuum rollers did not get too far out of sync or it would throw slack or put excess tension on the film and collapse the air bearings. Collapsing the air bearings was only a momentary problem with dry film, but with tacky film, it might ~~coil~~ stick to the tube surfaces. The control panel of the machine was inadequately labeled but I expect [ ] will take care of that.

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February 7, 1964

Digital Readout Comparator [redacted] STATINTL

STATINTL [redacted]

STATINTL The first unit wass shipped to [redacted] and received by them STATINTL on Monday Jan. 20. [redacted] has not started to work with this unit yet, so there are no reports of problems from the user.

STATINTL [redacted] is in the final stages of checking out the second unit. They found some wiring errors on the boards, but on the whole it seems to be going well. They also discovered some poor workman ship in their cables and were concerned that it was possible the cables for the first unit had the same thing wrong. They immediately STATINTL contacted [redacted] and asked him to take a look at the cables to see if they were OK. Dave said he would but they have not heard from him yet. The cables of course were working alright when [redacted] shipped STATINTL them with the unit.

STATINTL The replacements for the broken [redacted] swithhes on the STATINTL front panel were received. [redacted] did not send a mounting bracket with them, [redacted] called [redacted] in STATINTL STATINTL Idaho. [redacted] promised to send the brackets air mail, so they should arrive Monday.

STATINTL [redacted] the electronic technician working on the u STATINTL unit, and [redacted] the engineer expect to finish their checkout this afternoon. The unit will then be operated continuously for about 8 hours, then it goes to QC for visual check and sign off. They expect to ship it sometime next week.

→ They do not have as much information on the Optomechanisms pulse as they would like. The best thing of course would be for them to have a reding head and feed its output to their counter. Then they would be sure there is no problem. They don't know for example if the pulse is symmetrical, or the rise time of the leading edge or the fall time of the trailing edge. The input impedance of their counter is 20K ohms and they assume that is adequate STATINTL for the [redacted] reading head. They would also like to be assured that the pulse height of 1 volt stays constant over the range of the counting rate. If not, how much does it vary? All they really know about the pulse they are counting is that it is a square wave of 1 volt peak. The previous project engineer who started the design may have some of this information, but the current people don't.

[redacted] STATINTL

February 7, 1964

ABD-4 Roll Film Dryer [redacted] STATINTL

STATINTL [redacted]

STATINTL [redacted] still has not completely solved the tracking problem on the output vacuum roller. The film will run through well for about 500 feet and then it starts to go off. This is pretty good, but it does not permit unattended operation. I can remember when I would have considered that superb performance.

STATINTL [redacted] tapered the ends of the vacuum roller as much as 10 mils for the outer 2 inches, but that still did not completely solve the problem, although there was some improvement.

The tracking problem seems to be fundamental to the operation of ~~the~~ an air bearing dryer and may require some intensive investigation over a period of time to ensure the proper solution.

STATINTL [redacted] is considering two possibilities. One is to remove the offending roller and substitute an idler rubber covered roller or an air bearing roller. The dancing roller will then govern the speed of the take up spool to eliminate slack instead of a metering roller.

The other is to put an air bearing roller immediately in front of the vacuum roller. By edge guiding the film on the air bearing, it will be fed onto the vacuum roller straight and should not present tracking problems.

Frankly, I think this problem is a prime candidate for an investigative program. It seems to me it should be considered jointly with the HTA-5 investigative program.

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